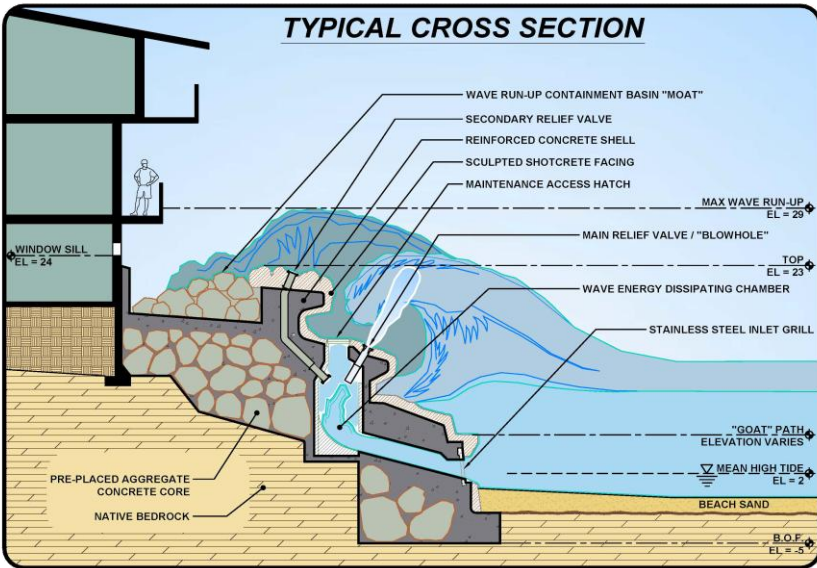




O'Neill Residence Seawall Capitola, California

Civil and Structural Engineering



Mesiti-Miller Engineering produced the structural and civil engineering design for the O'Neill Residence seawall replacement. The seawall replacement presented many challenges that required MME to work closely with the Owner, the California Coastal Commission and the Geotechnical Engineer. The end result of this collaborative effort is an innovative seawall which has the capacity to absorb wave energy due to its geometry, blending well with the surrounding environment and reuses existing materials in ways harmonious with the California Coastal Act.

The seawall is located on public and private lands and is designed to protect the O'Neill Residence from wave attack and erosion for the next 100 years. The seawall is constructed of a massive grouted stacked stone core, encased with an exterior architectural concrete façade. The exterior of the seawall was designed and constructed to replicate the character and color variation of the surrounding native materials matching key geologic features in the area adjacent to the project site.

The design challenges presented by the project include, compliance with the Local Coastal Plan, 100 year service life requirement despite daily tidal inundation and the corrosive/abrasive marine setting, scientific forecasts that sea level may rise during the 100 year design life, and the owner's desire to protect the visual aesthetics of the public beach, and improve lateral access along the public beach.



PRE-PLACED RIP RAP AGGREGATE

PHOTO BY JACK JR. O'NEILL



FLARED INLET VERTICAL CHAMBER
WAVE ENERGY DISSIPATING CHAMBER UNDER CONSTRUCTION

Client Reference:

Jack O'Neill, Owner
2-3610 East Cliff Drive
Santa Cruz, CA 95062

Budget: \$1,500,000



2014 Award of Merit for Excellence in Structural Engineering
from the Structural Engineers Association of Northern California (SEAONC) in the Special-Use Structures category